

("Zur nähern Kenntniss des Generationswechsels"), Leipzig, 1849; his "System der tierischen Morphologie" (1853); his beautiful atlas, "Icones Zoologicae" (1857); his text-book, "Handbuch der Zoologie," in collaboration with Gerstaecker (1863-1875); his essay "Ueber die Wertbestimmung der zoologischen Merkmale" (1854); his investigation on Leptocephalids (1861); his useful "Pröbdomus Faunæ Mediterraneæ" (2 vols., 1884-1893); his "Bibliotheca Zoologica," in collaboration with Engelmann (2 vols., Leipzig, 1862); his edition of the *Zoologischer Anzeiger*, since its beginning in 1878; his excellent translations of the more important of Darwin's works, of Leves's "Physiology of Daily Life," &c.; but above all his erudite and invaluable history of zoology ("Geschichte der Zoologie"), 1872. Although this well-known history is not marked by the genius which illumines Sachs's "History of Botany," it is a great work, quite enough in itself to make the name of Carus famous.

In reference to Carus's translation of Darwin's works, it is interesting to recall what Mr. Francis Darwin says in the "Life and Letters," vol. iii. p. 48. "From this time (1866) forward Prof. Carus continued to translate my father's books into German. The conscientious care with which this work was done was of material service, and I well remember the admiration (mingled with a tinge of vexation at his own shortcomings) with which my father used to receive lists of oversights, &c., which Prof. Carus discovered in the course of translation. The connection was not a mere business one, but was cemented by warm feelings of regard on both sides." In 1866 we find Darwin writing to Carus:—"I wish I had known when writing my historical sketch that you had, in 1853, published your views on the genealogical connection of past and present forms."

While Carus did not himself make many contributions to the research-literature of zoology, he was certainly one of those who facilitated the progress of the science. It is hard to say how much we owe to the persistent patience implied in the onerous labour of editing the *Zoologischer Anzeiger*, which has helped to keep us up to date for so many years, and has prompted other *Berichte* on similar or different lines. There can be no doubt that Carus gave his mature strength to making this journal a success—an indispensable item in every zoological laboratory, and an organon of progress. We are glad to see that the editorship, which he so ably discharged, has passed into the expert hands of Prof. E. Korschelt.

Although he lived a very quiet and unobtrusive life—*arbeitsreich*, as his fellow-countrymen say—he had his share of honours. He was an honorary doctor of philosophy of the University of Jena, and an LL.D. of both Oxford and Edinburgh, and he received decorations from Prussia, Saxony, and Russia. Herr Professor, Dr. med., phil. et jur. Julius Victor Carus, Ritter pp., was the doyen of the medical faculty of the University of Leipzig, and his obsequies were duly honoured both by the University and by the city on March 13. In the venerable Paulinerkirche the University preacher, Prof. D. Rietschel, spoke of Carus's devotion to science, literally maintained "till the pen dropped from the wearied fingers," of his keen artistic interests, of the nobility of his character, and of the strength of his family affections. He leaves a widow, three daughters (one married to Dr. J. Lehmann), and a son, Victor, to lament his loss. The Dean of the Medical Faculty, Prof. Hoffmann, spoke of his scientific patience and of the loyalty of his services along lines which frequently weakened health and other personal inhibitions left open to him. The fact seems to be that Carus might have been *professor ordinarius*

at Leipzig if he had not gracefully and magnanimously bowed to the strong claims of Rudolf Leuckart; "er war kein Streber und verstand es nicht seine Forschungen schnell genug zur Discussion zu stellen, sondern er legte sie in grossen Arbeiten langsam nieder." Thus it is readily intelligible why he devoted himself to a line of work which was not only organically congenial, but brought him some security of income.

It is, therefore, all the more desirable that we should record, as it were from a distance, how much we honour the name of Carus—as a bibliographer, as a historian of the science of zoology, and as one who, by persistent patience of recording, has made the steps of progress easier to thousands. J. A. T.

NOTES.

A ROYAL COMMISSION has been appointed to obtain and distribute full information as to the best mode by which the United Kingdom and British dominions may be represented at the St. Louis International Exhibition to be opened next year, to assist with advice and cooperation, and generally to promote the success of the exhibition. The commissioners are:—His Royal Highness the Prince of Wales, president; Viscount Peel, chairman; the Earl of Jersey, Earl Howe, Lord Castletown, Lord Inverclyde, Lord Alverstone, Lord Avebury, Mr. Horace Plunkett, the Hon. Charles Napier Lawrence, the Hon. Sir Charles W. Fremantle, Sir G. Hayter Chubb, Sir Edward J. Poynter, Sir C. Rivers Wilson, Sir E. Maunde Thompson, Sir William H. Preece, Sir W. T. Thiselton-Dyer, Sir Herbert Jekyll, Sir Lawrence Alma-Tadema, R.A., Sir C. Purdon Clarke, Sir George T. Livesey, Mr. Henry H. S. Cunynghame, Mr. Edwin A. Abbey, R.A., Mr. Charles Vernon Boys, F.R.S., Mr. Thomas Brock, R.A., Mr. George Donaldson, Prof. C. Le Neve Foster, F.R.S., Mr. John C. Hawkshaw, Mr. Thomas G. Jackson, R.A., Mr. W. Henry Maw, Mr. F. G. Ogilvie, Mr. William Q. Orchardson, R.A., Mr. Boverton Redwood, F.R.S., Mr. Alfred G. Salamon, Mr. Joseph W. Swan, F.R.S., Mr. J. J. Harris Teall, F.R.S., and Mr. F. W. Webb. Colonel C. M. Watson, C.B., is appointed secretary of the Commission.

At a meeting of the above commissioners on Tuesday, the Prince of Wales gave a short practical address, in the course of which he remarked: "Both France and Germany appear fully to realise the advantages to be gained by making a good display of their productions, and in these countries large sums have been provided by their respective Governments to assist in meeting the expense of the exhibits. There is one point to which it would seem desirable to direct attention. In previous international exhibitions, while other countries have arranged to have combined national displays in certain groups, it has been the habit for British manufacturers to show individual exhibits, rather than to combine together so as to produce the best possible effect. It is hoped that in the case of the St. Louis Exhibition it may be possible to arrange so that exhibitors will combine in order to display British products to the best advantage. It should be remembered that the competition will not be between individual British manufacturers, but between them as a whole and their foreign rivals. As regards the amount which will be available to carry out the work of the Royal Commission, I understand that His Majesty's Government has included a sum of 30,000*l.* in the Estimates for 1903-04 as a commencement, and that a decision will not be arrived at as to the total amount to be granted until it has been ascertained to what extent British manufacturers show a willingness to take part in the exhibition."

WE learn from the *Times* that the first annual meeting of the South African Association for the Advancement of Science, which already has 762 ordinary and 30 associate members, was opened on Monday at Cape Town, the Governor, Sir Walter Hely-Hutchinson, being among those present. Sir David Gill, K.C.B., F.R.S., delivered the presidential address. He urged the special claims of science upon the colonies and colonial Governments, and referred to the duties of the Association and to the prospects of scientific progress in South Africa. He also referred to the proposed visit to South Africa of the British Association in 1905, and the great good which would result from such a visit of scientific men.

WE regret to see the announcement of the death of Prof. J. Willard Gibbs, of Yale University, where he had filled the chair of mathematical physics since 1871. Prof. Gibbs was in his sixty-fifth year, and was elected a Foreign Member of the Royal Society in 1897.

THE death is announced of Mr. A. F. Osler, F.R.S., distinguished by his meteorological studies and the self-registering anemometer which bears his name. Mr. Osler was ninety-five years of age, and was elected a fellow of the Royal Society in 1855.

THE governing body of the Jenner Institute of Preventive Medicine will shortly appoint a director of the Institute, and applications are invited for the post.

THE subject of the Silliman lectures to be given at Yale University by Prof. J. J. Thomson, F.R.S., will be "The Present Development of Our Ideas of Electricity." The lectures, eight in number, begin on May 14.

AN International Kite Competition has been arranged for June 25 to be held on the Sussex Downs. Amongst the jury are Mr. C. V. Boys, F.R.S., Dr. W. N. Shaw, F.R.S., Sir Hiram Maxim, and Dr. H. R. Mill.

IT is reported by the *Times* correspondent at Sofia that preparations are being made at Odessa for the establishment of telegraphic communication with Varna by the Marconi system. The Russian authorities will thus be able to avoid the use of the telegraphic lines traversing Rumania.

THERE will be extra meetings of the Institution of Electrical Engineers on April 30 and May 7. It is expected that Mr. Aitken's paper on "Divided Multiple Switchboards: an Efficient Telephone System for the World's Capitals," will be read and discussed at the former meeting.

A REUTER telegram from Cape Town states that Dr. Rubin is about to leave there for Chinde, with a party of observers and native carriers, for the purpose of measuring an arc of meridian into North-eastern Rhodesia, from the Zambesi to Lake Tanganyika. The expedition will be away three years.

ON Monday next, May 4, the Berlin Gesellschaft für Erdkunde will celebrate the seventy-fifth year of its existence by a special meeting and a banquet. At the meeting a report will be read on the scientific activity of the Society during the past five years, Dr. Sven Hedin will give an address on his explorations in Tibet, and Prof. K. Sapper one on his studies of volcanic eruptions in the West Indies and Central America.

IT is stated in *Science* that the Swedish Government has voted 4000*l.* for the publication of the scientific results of Dr. Sven Hedin's journey through Central Asia. The work will comprise an atlas of two large volumes, while a third volume will contain Dr. Hedin's report on the geography of the country. Further volumes will be devoted to the meteorological, the astronomical, and the geological

observations, and to the botanical and zoological collections. The work will be published in English.

IN reply to a question asked in the House of Commons on Tuesday, Mr. Gerald Balfour said that up to the present time, in spite of careful negotiation, the Board of Trade has been unable to effect arrangements for a system of wireless telegraphy from shore to ship and ship to shore. The same difficulties have not arisen in the case of communication between ships at sea. Mr. Arnold-Forster informed the House on the same day that the present average expenditure upon wireless telegraphy in the Navy is about 20,000*l.* per annum.

THE council of the Institution of Civil Engineers has made the following awards for papers read and discussed before the Institution during the past session:—A Telford gold medal to Mr. Maurice Fitzmaurice, C.M.G., a Watt gold medal to Mr. B. Hopkinson, and a George Stephenson gold medal to Mr. P. J. Cowan. Telford premiums to Messrs. C. Hopkinson, E. Talbot, F. W. S. Stokes, P. J. Cowan, J. T. Milton, and W. J. Larke. The presentation of these awards, together with those for papers which have not been subject to discussion and will be announced later, will take place at the inaugural meeting of next session.

A RECENT cablegram from Captain Colbeck brings the information, says the *Times*, that, when he discovered the position of the winter quarters of the National Antarctic expedition, the ice prevented him from bringing the *Morning* nearer than eight miles to the *Discovery*. The transshipment of coals and provisions had, therefore, to be done by means of sledges dragged over that distance. The *Discovery* is only provisioned until next January, so that the despatch of the *Morning* for her relief a second time is an absolute necessity in order to avoid a catastrophe. For the additional expense a sum of 12,000*l.* is urgently needed, 6000*l.* this year and the rest next year.

THE *Tageblatt* publishes a wireless telegram transmitted by its correspondent from a train running between Rangsdorf and Zossen. The message states that experiments with wireless telegraphy were made from a train in motion on the Berlin-Zossen section of the military railway by a wireless telegraph company using the Braun-Siemens system. During the journey active communication was maintained between Marienfeld and Rangsdorf stations and the train, and trustworthiness in transmission was found in every case.

MR. C. C. PATERSON has been appointed to take charge of the electrotechnical work, including photometry, at the National Physical Laboratory. Under an arrangement with the Indian Government the laboratory is about to take over the work of preparing the tide tables for Indian ports. In this it will have, for the present, the assistance of Mr. Roberts, of the "Nautical Almanac" Office, in whose hands the work has been for many years. The committee has appointed Mr. F. J. Selby, formerly scholar of Trinity College, Cambridge, as assistant in charge of the work.

THE fourteenth International Congress of Medicine is being held at Madrid. In reality a series of congresses has been arranged. The first, that of the medical Press, commenced on April 20 in the Madrid University, and concluded on April 22. On April 23 the International Congress of Medicine proper was opened, the first meeting being held in the Theatre Royal, the King, the Queen Mother, and the Ministers being present. This main conference concludes to-day. On May 1 a third congress of Spanish-speaking European and American medical men commences and lasts for two days. On May 3 the fourth and last medical congress meets, and is to be purely a Spanish congress.

WE regret to record the death of Mr. G. P. Bulman, Newcastle-upon-Tyne, at the early age of twenty-six. He contributed several papers on the marine Mollusca of Northumberland to the reports issued from the Marine Laboratory, Cullercoats. He also made some experimental attempts to solve certain of the problems relating to heredity. The results he obtained with regard to "hybrid oochromy" were described in *NATURE*, June 27, 1901 (p. 207). At the time of his death he was carrying on in the gardens of the Durham College of Science an experiment to test the much-discredited phenomenon, telegony—about which he wrote in *Natural Science*, vol. xiv.

Mr. F. J. M. PAGE, writing from the Chemical Laboratory, London Hospital, states that radium bromide seems to have more penetrating power than the nitrate. Using the bromide he observed a distinct luminosity on a zinc sulphide screen after the rays had passed through ten post-cards and the card of the screen (in all 5 millimetres). A diamond was found to be superior to zinc sulphide in detecting these rays; thus, on covering the bromide with a florin, no effect on the zinc sulphide could be seen, whereas a diamond glowed perceptibly when placed on a heap of five florins (8.5 mm.) over the radium salt. A barium platinocyanide screen proved to afford a slightly more delicate test than the diamond.

At the meeting of the Institution of Mechanical Engineers on Friday, April 24, the president, Mr. J. H. Wicksteed, gave an address in which he traced briefly the development of the uses of iron, and Prof. W. E. Dalby read a paper on the education of engineers in America, Germany and Switzerland. Mr. Wicksteed remarked that in the earliest written records to which an accurate date can be fixed, namely, in the fourth millennium B.C., pyramid texts are found which prove beyond question that iron was well known in Egypt at that time, and that it was forged into weapons, tools and instruments. After an obscure existence of at least 3000 years, iron became historically famous. The time of Homer, 880 B.C., was notable for the attention that was given to iron. The iron of antiquity was made direct from the ore, and was spongy malleable iron, which could be made more or less steely; and it was only as reducing furnaces were enlarged and the blast increased that it came about within the last 400 years that cast-iron was produced on a commercial scale. Up to that time, bronze held the field for objects which could not be shaped by hand-hammering. The best authorities give the date 1490–1500 for the discovery of cast-iron, and it is remarkable that this discovery exactly corresponds with the revival of letters in England. From this time iron became as tractable as bronze, and the iron foundry was added to the forge.

A LARGE audience attended the meeting of the Royal Geographical Society on Monday to hear papers by Captain Sverdrup and Mr. P. Schei on four years' Arctic exploration and scientific observation in the *Fram*. From the furthest point north to which the expedition advanced—namely, Land's-lok, in about 81° 40' north lat., and long. 94° W.—they were unable to see land either towards the north or towards the west, and some new islands which were discovered would appear to form the natural termination of the Polar archipelago north of the American continent. Although Captain Sverdrup was not prepared to assert that no land really existed north or west of the point he had indicated, he thought it extremely unlikely that land would be discovered in those directions, for as far as ever they were able to see there was nothing but sea covered with ice of the usual coarse Arctic character. Captain Sverdrup said that in many parts of the newly-

discovered lands there appeared to be an abundance of animal life, especially musk-oxen and smaller game, such as hares and ptarmigan, as well as foxes and wolves. Bears also were numerous in parts. Almost everywhere remains were discovered of Eskimo habitations. The scientific results of the expedition are very valuable. Meteorological observations were taken every second hour, both in summer and in winter; records were also made of the temperature of the sea and of the ice, as well as of the tidal water. Magnetic observations were made at each of the several winter quarters. The expedition brought home rich and valuable materials for the study of the zoology, botany, and geology of parts of the Arctic which had never before been visited. The *Fram* reached Norway on September 12, 1902, after an absence of four and a quarter years.

Symons's Meteorological Magazine for April contains articles of exceptional interest relating to the rainfall of the last winter, the shortage of water, and the storm of February 26, by Prof. C. J. Joly, Astronomer Royal for Ireland. We select for especial notice the table of rainfall extremes at Camden Square for forty years, 1858–97. The average rainfall is 25.46 inches. The driest period is the spring, the rainfall each month from February to May being below two inches; in all other months the average fall exceeds two inches, the maximum, 2.71 inches, occurring in October. The greatest monthly fall was 6.72 inches in August, 1878, and the lowest 0.01 inch in February, 1891. The greatest daily fall was 3.28 inches on June 23, 1878. Rain falls, on an average, on 161.8 days in the year, the extremes being from 106 to 204 days.

THE appendix to the reports of the British South Africa Company on the administration of Rhodesia, for 1900 to 1902, contains a meteorological report by Mr. George Duthie. During the year ended March 31, 1902, or part of it, there were in operation seven barometric stations (three in Mashonaland and four in Matabeleland), three climatological or thermometric stations (one in Mashonaland and two in Matabeleland), and nine purely rainfall stations—making nineteen rainfall stations in all (twelve in Mashonaland and seven in Matabeleland). One barometric station and five rainfall stations have been added during the year. Mr. Duthie's report contains abstracts of the observations made at the stations, and also summaries of observations made in British Central Africa under the direction of Mr. McClounie.

THE fourth, and concluding, number of vol. iii. of the *West Indian Bulletin* contains two articles by Mr. Maxwell-Lefroy, late entomologist to the Agricultural Department. The first forms the concluding portion, divided into thirteen subjects, of a lengthy account of the scale insects of the West Indies. His second paper is on "Crude Oil and Soap, a New General Insecticide." Kerosene is rather expensive in the West Indies, and so also is American crude petroleum, so Mr. Maxwell-Lefroy was induced to experiment with a crude oil mined in Barbados, and from this and soap he has obtained an emulsion which is a most valuable insecticide, from the very much increased insecticidal properties of the heavy oil used. Mr. Francis Watts has some notes on West Indian fodders, and there is a report of an address by Dr. Morris on agricultural efforts at Dominica.

WE have to acknowledge the receipt of a brochure on the causes of weather and earthquakes, from Captain A. J. Cooper, who is known to hold some rather unorthodox views on the subject of tides and other phenomena. The greater part of the pamphlet is occupied with comparisons between the dates of storms and the configuration of the

planets. The principle on which this comparison is made seems to be wrong. A storm having been recorded, an inquiry is made into the positions of the planets, moon, &c. It would be more convincing if, from the arrangement of the planets, the weather was foretold. The reply of the author is, however, that we do not know sufficient of the state of the weather over the whole world to be able to say whether the prediction is justified or not. The author does not seem to have read Prof. Schuster's address to the Astronomical Section at Belfast, in which he will find discussed the true principles which indicate a real connection between phenomena in which some relationship can be traced.

A METHOD of studying the action of insects' wings by instantaneous photography is described by Herr Robert von Lendenfeld in the *Biologisches Centralblatt*. The photographs were taken by concentrated sunlight, as many as 2500 exposures per second being obtained by revolving a cog-wheel in the plane in which the image of the sun was focused. The photographic images of the insect were separated by means of a revolving mirror. One great difficulty was to make the fly fly, and it must not be forgotten that the insect was confined in a very restricted space, or even in some cases held in the fingers, thus hardly reproducing the conditions of free flight.

In a note in the *Bulletin* of the Imperial Naturalists' Society of Moscow, M. W. Mamontow describes a diamond contributed to the mineralogical museum at Moscow from the Ural Mountains. It was one of four diamonds found in a new secondary bed near the village of Koltachi; it weighed 1.107 carat, and its specific gravity was 3.516. Most of the Ural Mountain diamonds weigh less than a carat. The author describes sixteen deposits in the southern and central Urals from which more than 222 crystals have been obtained in seventy-three years.

WHETHER the microbes which are constantly present in the intestinal canal of man and animals are essentially necessary to promote digestion, are harmless and unnecessary, or are even injurious, is a question on which various observers have arrived at different results. In a paper communicated to the *Bulletin* of the Imperial Naturalists' Society of Moscow, Mdlle. P. V. Tsiklinsky discusses this question. From an examination of the literature of the subject, and from a study of the microbe flora in question, the authoress is led to believe that, while certain microbes do undoubtedly promote digestion, and, in accordance with M. Metchnikoff's observations, in some cases exercise an antagonistic influence against germs of disease, it is probably possible, by artificial means, such as by variation of diet, to dispense with the bacteria in question, and thus to avoid the danger that they often cause in the living animal. Further, the view is put forward that the thermophilous microbes of the intestinal canal are mere varieties of ordinary non-thermophilous microbes, and not distinct species.

We have received from Messrs. W. Watson and Son, of High Holborn, their latest catalogue of microscopes and accessories. Among the new items may be mentioned the series of substage condensers, which, through the courtesy of Messrs. Watson, we have had an opportunity of testing. These are all of a high order, especially the "holoscopic" oil immersion condenser, which appears to be as good as, if not superior to, any similar condenser we have had through our hands. The "macro illuminator" is a most useful accessory for low-power photomicrography, the illumination of large objects being by its aid very easily accomplished. There is also described a new two-speed fine adjustment, the design and construction of which is

of considerable merit as well as a fine adjustment, designed for photomicrography and high-power work by Mr. E. B. Stringer, which should be of the greatest value to workers in these branches. The well-known "Van Heurck" microscope, than which there is probably no finer instrument to be obtained, is again described fully, as well as a new metallurgical microscope, for which there should, in view of the great advances recently in this branch of work, be a considerable demand.

WE have received what appears to be the first part of a new Italian entomological journal, *Redia*, published at Portici. This part comprises a single memoir, by Signor F. Silvestri, on the termites and the insects which live with them of South America. For the purpose of his researches the author visited Argentina in 1898, and Chili and Uruguay in the following year, obtaining a vast store of material, which has since been carefully worked out. The present memoir contains accounts of a number of new generic and specific types discovered by the author. Six plates are devoted to details of structure.

A UNIQUE specimen has been added to the gallery of fossil reptiles in the Natural History Museum. This is a considerable portion of the skeleton of a gigantic sauropod dinosaur obtained from the Oxford Clay near Peterborough by Mr. E. N. Leeds, of Eyebury. When first the bones of this species were discovered some years ago, they were described by the late Mr. J. W. Hulke as *Ornithopsis leedsi*, but the generic title has since been changed to *Cetiosaurus*. The remains include the tail, sacrum, and parts of one hind and one fore limb. The Peterborough dinosaur, which is evidently allied to the American *Diplodocus* (of which restored sketches are placed alongside), is the first example of the larger forms of these reptiles found in Britain of which enough of the skeleton has been found to admit of its being mounted. The mounting reflects the greatest credit on the mason and artificers of the museum.

AMONG the series of memoirs on the fishes of Japan by Messrs. Jordan and Fowler, to which allusion has so frequently been made in these columns, none is of more general interest than the one on the sharks and rays (Elasmobranchs), forming No. 1324 of the *Proceedings* of the U.S. Nat. Mus. Of the numerous forms recorded, by far the most noteworthy is the shark described as *Mitsukurina owstoni*. The genus and species are based on a single specimen captured in 1898 off Misaki in deep water, which, until November of last year, remained the only known example. Dr. Smith Woodward has suggested that this shark is not generically distinct from the Eocene *Scapanorhynchus*, but this is not admitted by the authors of the memoir before us, although the characters on which they maintain its distinctness appear insignificant. Messrs. Jordan and Fowler adopt more family groups than is usual, and use several names which are unfamiliar, although in employing *Cetorhinus*, in place of *Selache*, for the basking-shark they are undoubtedly right.

As Prof. L. Bailey has made a special study of plant-breeding and plant form, he is well qualified to discuss the modern theories of variation and principles of hybridisation. These subjects he treated in an address delivered before the American Society for Plant Morphology and Physiology, and his paper has been printed in *Science*. Prof. Bailey points out that the most important part of Mendel's contribution is the law of heredity which he put forward, which is based upon similarity or purity of the two fusing elements.

THE Botanical Club of Canada has endeavoured to stimulate the collection of phenological records throughout the various provinces of the Dominion, and in Columbia and

Nova Scotia many of the schools undertake these observations as a form of nature-study. The schedules which have been distributed include the observation of farming operations and a few meteorological phenomena, in addition to the ordinary data connected with the opening of flowers. The annual report contains a series of observations made in Nova Scotia, from which average dates or phenochrons are calculated.

ATTENTION is directed by Mr. O. E. Dunlap to a remarkable diversion in the waters of Niagara which happened on March 22 (*Scientific American*, April 4). On the previous afternoon ice came down the upper river from Lake Erie in such quantities that immense masses lodged on the rocks above Goat Island and diverted the water from the American to the Canadian channel. Thus the river-bed above the American fall between the mainland and Goat Island was left practically dry, and numbers of people were able to walk from Green Island over reefs of rock to the head of Goat Island. Here and there gravelly deposits and loose blocks of limestone were to be seen, amid great patches of ice, and barely enough water fell over the limestone ledge to curtain the rocky cliffs below. It is recorded that a similar incident occurred on March 29, 1848.

THE fossil fruits to which Bowerbank gave the name *Nipadites* have in this country been obtained from the London Clay of Sheppey and the Bracklesham Beds of Sussex. The various forms from the Eocene strata of Belgium have been grouped under one specific name, *Nipadites Burtini*, given by Brongniart in 1828 (as *Cocos Burtini*), and of which the *N. giganteus* of Bowerbank and the *N. Bowerbankii* of Ettingshausen are regarded as synonyms. These conclusions are stated in an essay by Mr. A. C. Seward and Mr. E. A. N. Arber (*Mém. Musée Roy. d'Hist. Nat. de Belgique*, tome ii., 1903). The authors remark on the structural resemblance between the fossil fruits and those of the recent palm, *Nipa*, which flourishes in the East Indies from the Lower Ganges and Ceylon, across the Malay Peninsula and Archipelago, even to Australia.

ON Tuesday evenings during May the following lectures will be given at the Royal Victoria Hall:—Dr. Mill, on "Weather and Weather Prophets"; Dr. Bertram Abrahams, on "Egypt"; Mr. Cunningham, on "Fishes"; and Canon J. W. Horsley, on "Insects."

PROF. N. W. LORD'S "Notes on Metallurgical Analysis" have reached a second edition. In its new form the book is not only suitable for students in technical schools, but also as a book of reference for use in metallurgical laboratories. Methods for the determination of all elements likely to be encountered in ordinary analyses have been included in the new edition, and the subjects of gas analysis and the testing of fuel have been more fully described than in the original issue of the volume. The book is issued from the Metallurgical Laboratory of the Ohio State University.

THE twenty-eighth issue—that for 1903—of the *Aide-Mémoire de Photographie*, edited by M. C. Fabre and published under the auspices of the Toulouse Photographic Society by M. Gauthier-Villars, of Paris, is full of valuable information for photographers. In addition to the lists of the principal photographic societies in Europe and America, the photographic magazines, and books on photography published during 1902, it contains a detailed review, in seven chapters, of photographic developments during last year.

THE additions to the Zoological Society's Gardens during the past week include a Chacma Baboon (*Papio*

porcarius), four Black-backed Jackals (*Canis mesomelas*), two Caracals (*Felis caracal*), a Feline Genet (*Genetta felina*), a Dusty Ichneumon (*Herpestes pulverulentus*), four Suricates (*Suricata tetradactyla*), three Levaillant's Cynictis (*Cynictis penicillata*), two Bristly Ground Squirrels (*Xerus capensis*), a Crested Porcupine (*Hystrix cristata*), five Cape Hyraxes (*Hyrax capensis*), seven Spotted Eagle Owls (*Bubo maculosa*), a Bearded Falcon (*Falco biarmicus*), five Jackal Buzzards (*Buteo jacob*), a Chanting Hawk (*Melicorax musicus*), five South African Kestrels (*Tinnunculus rupicolus*), a Large African Kestrel (*Tinnunculus rupicoloides*), four Leopard Tortoises (*Testudo pardalis*), a Tuberculated Tortoise (*Homopus femoralis*) from South Africa, three Rufous Weaver-birds (*Hyphantornis textor*), a Grenadier Weaver-bird (*Euplectes oryx*), three Triangular-spotted Pigeons (*Columba guinea*), seven Egyptian Geese (*Chenaloepex aegyptiacus*) from West Africa, presented by Colonel A. T. Sloggett, C.M.G.; a Sykes's Monkey (*Cercopithecus albigularis*) from West Africa, a Smooth-headed Capuchin (*Cebus monachus*) from South-east Brazil, a Ring-tailed Coati (*Nasua rufa*) from South America, seven Long-nosed Vipers (*Vipera ammodytes*), two Painted Frogs (*Discoglossus pictus*), two Edible Frogs (*Rana esculenta*), a Southern Mud Frog (*Pelobates cultripes*), European; two Pennant's Parrakeets (*Platycercus pennanti*), twelve Golden Tree Frogs (*Hyla aurea*) from Australia, two Seven-banded Snakes (*Tropidonotus septemvittatus*), a Hog-nosed Snake (*Heterodon platyrhinus*) from North America, deposited.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES IN MAY:—

- May 1–6. Epoch of Aquarid meteoric shower (Radiant $337^{\circ} - 2^{\circ}$).
10. 2h. Mercury at greatest elongation ($21^{\circ} 31' E$).
 „ Ceres $\frac{3}{4}^{\circ}$ S. of μ Leonis (mag. 4.1).
 11. Juno $\frac{1}{2}^{\circ}$ N. of ϵ Ophiuchi (mag. 3.3).
 12. 8h. 7m. to 9h. 5m. Moon occults χ Ophiuchi (mag. 5.0).
 15. Venus. Illuminated portion of disc = 0.738, of Mars = 0.926.
 „ 13h. 5m. to 16h. 27m. Transit of Jupiter's Satellite III. (Ganymede).
 19. Neptune in conjunction with η Geminorum, Neptune $10' S$.
 20. 14h. Venus in conjunction with ϵ Geminorum, Venus $10' N$.
 21. Juno (mag. 8.7) in opposition to the Sun.

NOVA GEMINORUM BEFORE ITS DISCOVERY.—On receiving the Kiel announcement of Prof. Turner's discovery of Nova Geminorum, Prof. Pickering instituted a search for this object on the early photographs of this region taken for the Henry Draper memorial series.

A negative obtained on March 1d. 15h. 3m. (G.M.T.), whilst showing stars of 11.9 magnitude, shows no trace of the Nova, neither could the latter be found on any of the sixty-seven plates of this region taken between March 3, 1890, and February 28, 1903, although most of them show stars of the twelfth magnitude or fainter. A plate obtained on March 2d. 13h. 19m. shows stars of magnitude 9.0, but shows no object in the Nova's position.

On a photograph taken March 6d. 14h. 28m. there is the image of an object occupying the position of the Nova, the photographic magnitude of which is 5.08 ± 0.26 , and negatives taken on several succeeding nights show that the magnitude gradually decreased until on March 25 it was only 8.08.

The photograph obtained on the last-named date was taken with an objective prism, and shows the spectrum of the Nova as a conspicuous object amongst the spectra of the surrounding stars. This spectrum shows six bright